

Amendments to the Claims:

The following listing of claims shall replace all previous listings of the claims.

Listing of Claims:

1. (Canceled)
2. (Currently Amended) ~~Process~~ The method according to claim [[1]] 32, wherein the M-ary orthogonal keying modulation and demodulation operations include ~~are~~ comprised of M-ary bi-orthogonal keying (MBOK) modulation and demodulation operations.
3. (Currently Amended) ~~Process~~ The method according to claim [[1]] 32, wherein ~~the modulation and demodulation include M-ary orthogonal keying (MOK) modulation and demodulation combined~~ said performing includes combining said M-ary orthogonal keying modulation operations with phase shift keying (PSK) modulations; and ~~wherein~~ said processing includes combining said M-ary orthogonal keying demodulations with PSK demodulations.
4. (Currently Amended) ~~Process~~ The method according to claim 3, wherein the phase shift keying modulations and demodulations include differential phase shift keying (DPSK) modulations and demodulations.

5. (Currently Amended) ~~Process~~ The method according to Claim [[1]] 32, wherein ~~the number of spread codes is the same in each group~~ of spreading codes contains the same number of spreading codes.

6. (Currently Amended) ~~Process~~ The method according to Claim [[1]] 32, wherein the spreading codes used are all different from one group to another group, and ~~wherein the code numbers of spreading codes in the groups~~ are equal to powers of 2.

7. (Currently Amended) ~~Process~~ The method according to Claim [[1]] 32, wherein one or more particular ~~certain~~ spreading codes are used in more than one group ~~several groups~~.

8.-12. (Canceled)

13. (Currently Amended) The receiver according to claim [[12]] 34, wherein [[the]] each of said M-ary orthogonal keying demodulation operations comprises an M-ary bi-orthogonal keying (MBOK) demodulation operation.

14. (Currently Amended) The receiver according to claim [[12]] 34, wherein ~~the demodulation comprises~~ said means for processing includes processing by combining said an M-ary orthogonal keying (MOK) demodulations combined with [[a]] phase shift keying (PSK) demodulations.

15. (Currently Amended) The receiver according to claim 14, wherein ~~[[the]]~~ each phase shift keying demodulation comprises a differential phase shift keying (DPSK) demodulation.
16. (Currently Amended) ~~Process~~ The method according to Claim 4, wherein the number of spreading codes is the same in each group.
17. (Currently Amended) ~~Process~~ The method according to Claim 5, wherein the spreading codes used are all different from one group to another group, and wherein the ~~code~~ numbers of spreading codes in the groups are equal to powers of 2.
- 18.-19. (Canceled)
20. (Currently Amended) A method comprising:
- processing a received signal at a plurality of filters adapted to a respective plurality of M-ary orthogonal keyed signals to provide a plurality of filtered signals, with more than one filtered signal associated with each of said M-ary orthogonal keyed signals portions of said received signal;
- ranking said filtered signals associated with each of said plurality of M-ary orthogonal keyed signals ~~plurality of portions~~ based, at least in part, on amplitudes or ~~energy~~ energies associated with said filtered signals portions; and
- demodulating said filtered signals ~~portions~~ based, at least in part, on said ranking to provide a plurality of associated data blocks.

21. (Currently Amended) The method of claim 20, wherein said demodulating ~~said portions further~~ comprises:

retrieving a plurality of codes according to rankings of associated filtered signals,
to obtain retrieved codes ~~portions of said received signal~~; and

processing said ~~associated portions of said received signal based, at least in part,~~
~~on said~~ retrieved codes to provide said associated data blocks.

22.-23. (Canceled)

24. (Currently Amended) The method of claim ~~[[23]]~~ 20, wherein said demodulating
said ~~portions~~ filtered signals further comprises demodulating said filtered signals ~~portions~~
according to a phase shift keying demodulation technique.

25. (Currently Amended) The method of claim 20, wherein said demodulating said
~~portions~~ filtered signals further comprises demodulating said filtered signals ~~portions~~
according to an M-ary bi-orthogonal keying demodulation technique.

26. (Currently Amended) A receiver ~~to process a received signal, the receiver~~
comprising:

a plurality of filters adapted to a respective plurality of M-ary orthogonal keyed
signals to provide a plurality of filtered signals in response to a received signal, with

more than one filtered signal associated with each of said M-ary orthogonal keyed signals portions of said received in response to said received signal;

a circuit adapted to rank said filtered signals associated with each of said plurality of M-ary orthogonal keyed signals portions based, at least in part, on amplitudes or energy energies associated with said filtered signals, thus resulting in a ranking portions; and

a plurality of demodulators, each associated with a respective group of said plurality of filtered signals associated with one of said plurality of M-ary orthogonal keyed signals portions and adapted to demodulate said associated plurality of filtered signals portions based, at least in part, on said ranking.

27. (Currently Amended) The receiver of claim 26, ~~and further~~ said plurality of demodulators comprising a plurality of code tables, and wherein said plurality of demodulators are further adapted to process said associated filtered signals portions based, at least in part, on codes retrieved from said code tables, said codes being retrieved from said code tables based, at least in part, on said ranking of said plurality of filtered signals portions.

28.-29. (Canceled)

30. (Currently Amended) The receiver of claim ~~[[29]]~~ 26, wherein said plurality of demodulators are further adapted to demodulate said filtered signals portions according to a phase shift keying demodulation technique.

31. (Currently Amended) The receiver of claim 26, wherein said plurality of demodulators are further adapted to demodulate said filtered signals ~~portions~~ according to an M-ary bi-orthogonal keying demodulation technique.

32. (New) A method comprising:

dividing data to be transmitted into a predetermined number of data blocks;

performing, in parallel, an M-ary orthogonal keying modulation operation on each of said data blocks, wherein each said M-ary orthogonal keying modulation operation modulates a corresponding one of said data blocks using a group of spreading codes, each of said M-ary orthogonal keying modulation operations resulting in a corresponding M-ary orthogonal keyed signal;

combining the resulting M-ary orthogonal keyed signals and transmitting the combined signal;

receiving the combined signal and processing the combined signal in a number of parallel M-ary orthogonal keying demodulation operations, said number corresponding to said predetermined number of data blocks, wherein each said M-ary orthogonal keying demodulation operation processes the combined signal using a group of spreading codes corresponding to a group of spreading codes used by one of said M-ary orthogonal keying modulation operations;

choosing an output data block for each of said M-ary orthogonal keying demodulation operations based on relative amplitudes or energies of results obtained by

processing the combined signal using each code of said group of spreading codes used by the respective M-ary orthogonal keying demodulation operation; and

combining the output data blocks obtained for the M-ary orthogonal keying demodulation processes.

33. (New) The method according to Claim 32, wherein said processing includes filtering the combined signal in groups of parallel filtering operations, each of said groups of parallel filtering operations corresponding to one of said groups of spreading codes, wherein each filtering operation from each group of parallel filtering operations processes the combined signal according to a different one of the spreading codes from the group of spreading codes to which the group of parallel filtering operations corresponds.

34. (New) A receiver, comprising:

means for processing a received signal in a number of parallel M-ary orthogonal keying demodulation operations, said number corresponding to a predetermined number of data blocks, wherein each said M-ary orthogonal keying demodulation operation processes the combined signal using a group of spreading codes;

means for choosing an output data block for each said M-ary orthogonal keying demodulation operation based on relative amplitudes or energies of results obtained by processing the received signal using each code of said group of spreading codes corresponding to the respective M-ary orthogonal keying demodulation operation; and

means for serially combining the output data blocks obtained from the M-ary orthogonal keying demodulation processes.

35. (New) The receiver according to Claim 34, wherein said means for processing includes means for filtering the combined signal in groups of parallel filtering operations, each of said groups of parallel filtering operations corresponding to one of said groups of spreading codes, wherein each filtering operation from each group of parallel filtering operations processes the combined signal according to a different one of the spreading codes from the group of spreading codes to which the group of parallel filtering operations corresponds.

36. (New) The method of claim 20, wherein each of said plurality of M-ary orthogonal keyed signals is associated with a respective group of spreading codes, and wherein each of said plurality of filters is adapted to a spreading code from said groups of spreading codes.

37. (New) The method of claim 36, wherein each group of spreading codes contains a set of spreading codes that are different from a set of spreading codes contained in any other group of spreading codes.